

WATER SAMPLING DATA

Job Name YOLANDA Job Number 98-507-14
 Well Number MW-22d145 Date 7/13/05 Time _____
 Well Diameter MULTI-LEVEL Well Depth (spec.) _____ Well Depth (sounded) 145.00
 Depth to Water (static) 14.37 TOC elev. _____
 G.W. Elev. _____ Maximum Drawdown Limit (if applicable) _____

Initial height of water in casing 130.63 Volume 1.30 gallons
 Total to be evacuated = 3 x Initial Volume 3.91 gallons

Stop Time Start Time Bailed Pumped Cum. Gal.

Formulas/Conversions
 r = well radius in ft
 h = ht of water col. in ft
 vol. in cyl. = $\pi r^2 h$
 7.48 gal/ft^3
 $V_{2"} \text{ casing} = 0.163 \text{ gal/ft}$
 $V_{1"} \text{ casing} = 0.367 \text{ gal/ft}$
 $V_{1/2"} \text{ casing} = 0.653 \text{ gal/ft}$
 $V_{3/4"} \text{ casing} = 0.826 \text{ gal/ft}$
 $V_{1"} \text{ casing} = 1.47 \text{ gal/ft}$

Pumped or Bailed Dry? ____ Yes X No After _____ gallons Recovery Rate _____
 Water color _____ Odor _____
 Description of sediments or material in sample: _____
 Additional Comments: _____

CHEMICAL DATA

Reading No.	1	2	3	4	5	6	7
Time							
Gallons							
Temp. (degree F)	<u>72.8</u>	<u>70.8</u>	<u>71.5</u>				
pH	<u>6.18</u>	<u>6.05</u>	<u>6.35</u>				
EC (umhos/cm)	<u>1006</u>	<u>969</u>	<u>992</u>				
Special Conditions							

SAMPLES COLLECTED

Sample ID ml	Bottle/cap	Filtered (size, u)	Preservative (type)	Refrig. (R, NR)	Lab (Init)	Analysis Requested

Bottles: P = Polyethylene; Pp = Polypropylene; C or B = Clear/Brown Glass; O = Other (describe)
 Cap Codes: Py = Polyseal; V = VOA/Teflon septa; M = Metal

12:40

WATER SAMPLING DATA

Job Name YOLANDA Job Number 98-507-14
 Well Number MW-22-165 Date 7/13/05 Time _____
 Well Diameter MUTH-LEVEL Well Depth (spec.) _____ Well Depth (sounded) 165.00
 Depth to Water (static) 14.38 TOC elev. _____
 G.W. Elev. _____ Maximum Drawdown Limit (if applicable) _____

Initial height of water in casing 150.62 Volume 1.50 gallons
 Total to be evacuated = 3 x Initial Volume 4.51 gallons

Stop Time Start Time Bailed Pumped Cum. Gal.

Formulas/Conversions

r = well radius in ft
 h = ht of water col. in ft
 vol. in cyl. = $\pi r^2 h$
 7.48 gal/ft³
 V_2 " casing = 0.163 gal/ft
 V_1 " casing = 0.367 gal/ft
 V_4 " casing = 0.653 gal/ft
 $V_{1.5}$ " casing = 0.826 gal/ft
 V_6 " casing = 1.47 gal/ft

Pumped or Bailed Dry? ____ Yes X No After _____ gallons Recovery Rate _____
 Water color _____ Odor _____
 Description of sediments or material in sample: _____
 Additional Comments: _____

CHEMICAL DATA

Reading No.	1	2	3	4	5	6	7
Time							
Gallons							
Temp. (degree F)	<u>73.6</u>	<u>71.0</u>	<u>69.9</u>				
pH	<u>5.85</u>	<u>5.94</u>	<u>6.24</u>				
EC (umhos/cm)	<u>998</u>	<u>967</u>	<u>983</u>				
Special Conditions							

SAMPLES COLLECTED

Sample ID ml	Bottle/cap	Filtered (size, u)	Preservative (type)	Refrig. (R, NR)	Lab (Init)	Analysis Requested

Bottles: P = Polyethylene; Pp = Polypropylene; C or B = Clear/Brown Glass; O = Other (describe)
 Cap Codes: Py = Polyseal; V = VOA/Teflon septa; M = Metal

12:55

WATER SAMPLING DATA

Job Name YOLANDA Job Number 98-507-14
 Well Number MW-23125 Date 7/13/05 Time _____
 Well Diameter MULTI-LEVEL Well Depth (spec.) _____ Well Depth (sounded) 25.00
 Depth to Water (static) 15.09 TOC elev. _____
 G.W. Elev. _____ Maximum Drawdown Limit (if applicable) _____

Initial height of water in casing 9.91 Volume 0.09 gallons
 Total to be evacuated = 3 x Initial Volume 0.29 gallons

Stop Time Start Time Bailed Pumped Cum. Gal.

Formulas/Conversions

r = well radius in ft
 h = ht of water col. in ft
 vol. in cyl. = $\pi r^2 h$
 7.48 gal/ft^3
 V_2 " casing = 0.163 gal/ft
 V_1 " casing = 0.367 gal/ft
 V_4 " casing = 0.653 gal/ft
 $V_{4.5}$ " casing = 0.826 gal/ft
 V_6 " casing = 1.47 gal/ft

Pumped or Bailed Dry? Yes ☒ No After _____ gallons Recovery Rate _____
 Water color _____ Odor _____
 Description of sediments or material in sample: _____
 Additional Comments: _____

CHEMICAL DATA

Reading No.	1	2	3	4	5	6	7
Time							
Gallons							
Temp. (degree F)	<u>71.0</u>						
pH	<u>6.99</u>						
EC (umhos/cm)	<u>531</u>						
Special Conditions							

SAMPLES COLLECTED

Sample ID ml	Bottle/cap	Filtered (size, u)	Preservative (type)	Refrig. (R, NR)	Lab (Init)	Analysis Requested

Bottles: P = Polyethylene; Pp = Polypropylene; C or B = Clear/Brown Glass; O = Other (describe)
 Cap Codes: Py = Polyseal; V = VOA/Teflon septa; M = Metal

10:35

WATER SAMPLING DATA

Job Name YOLANDA Job Number 98-507-14
 Well Number MW-23A75 Date 7/13/05 Time _____
 Well Diameter MULTI-LEVEL Well Depth (spec.) _____ Well Depth (sounded) 75.00
 Depth to Water (static) 15.17 TOC elev. _____
 G.W. Elev. _____ Maximum Drawdown Limit (if applicable) _____

Formulas/Conversions

r = well radius in ft
 h = ht of water col. in ft
 vol. in cyl. = $\pi r^2 h$
 7.48 gal/ft^3
 V_2 " casing = 0.163 gal/ft
 V_1 " casing = 0.367 gal/ft
 V_4 " casing = 0.653 gal/ft
 $V_{4.5}$ " casing = 0.826 gal/ft
 V_6 " casing = 1.47 gal/ft
 Cum. Gal.

Initial height of water in casing 59.83 Volume 0.59 gallons
 Total to be evacuated = 3 x Initial Volume 1.79 gallons

Stop Time Start Time Bailed Pumped Cum. Gal.

Pumped or Bailed Dry? ____ Yes X No After _____ gallons Recovery Rate _____
 Water color _____ Odor _____
 Description of sediments or material in sample: _____
 Additional Comments: _____

CHEMICAL DATA

Reading No.	1	2	3	4	5	6	7
Time							
Gallons							
Temp. (degree F)	<u>71.6</u>	<u>68.8</u>	<u>68.5</u>				
pH	<u>6.39</u>	<u>6.65</u>	<u>6.73</u>				
EC (umhos/cm)	<u>1219</u>	<u>1235</u>	<u>1207</u>				
Special Conditions							

SAMPLES COLLECTED

Sample ID ml	Bottle/cap	Filtered (size, u)	Preservative (type)	Refrig. (R, NR)	Lab (Init)	Analysis Requested

Bottles: P = Polyethylene; Pp = Polypropylene; C or B = Clear/Brown Glass; O = Other (describe)
 Cap Codes: Py = Polyseal; V = VOA/Teflon septa; M = Metal.

10:55

WATER SAMPLING DATA

Job Name YOLANDA Job Number 98-507-14
 Well Number MW-23#145 Date 7/13/05 Time _____
 Well Diameter MULTI-LEVEL Well Depth (spec.) _____ Well Depth (sounded) 145.00
 Depth to Water (static) 15.52 TOC elev. _____
 G.W. Elev. _____ Maximum Drawdown Limit (if applicable) _____

Formulas/Conversions

r = well radius in ft
 h = ht of water col. in ft
 vol. in cyl. = $\pi r^2 h$
 7.48 gal/ft³
 V_2 " casing = 0.163 gal/ft
 V_1 " casing = 0.367 gal/ft
 V_4 " casing = 0.653 gal/ft
 $V_{4.5}$ " casing = 0.826 gal/ft
 V_6 " casing = 1.47 gal/ft

Initial height of water in casing 129.48 Volume 129 gallons
 Total to be evacuated = 3 x Initial Volume 3.88 gallons

Stop Time Start Time Bailed Pumped Cum. Gal.

Pumped or Bailed Dry? ____ Yes ☒ No After _____ gallons Recovery Rate _____
 Water color _____ Odor _____
 Description of sediments or material in sample: _____
 Additional Comments: _____

CHEMICAL DATA

Reading No.	1	2	3	4	5	6	7
Time							
Gallons							
Temp. (degree F)	<u>74.3</u>	<u>74.0</u>	<u>76.4</u>				
pH	<u>6.78</u>	<u>6.43</u>	<u>6.41</u>				
EC (umhos/cm)	<u>781</u>	<u>749</u>	<u>740</u>				
Special Conditions							

SAMPLES COLLECTED

Sample ID ml	Bottle/cap	Filtered (size, u)	Preservative (type)	Refrig. (R, NR)	Lab (Init)	Analysis Requested

Bottles: P = Polyethylene; Pp = Polypropylene; C or B = Clear/Brown Glass; O = Other (describe)
 Cap Codes: Py = Polyseal; V = VOA/Teflon septa; M = Metal

11:20

WATER SAMPLING DATA

Job Name YOLANDA Job Number 98-507-14
 Well Number MW-23d180 Date 7/13/05 Time _____
 Well Diameter MULTI-LEVEL Well Depth (spec.) _____ Well Depth (sounded) 180.00
 Depth to Water (static) 15.59 TOC elev. _____
 G.W. Elev. _____ Maximum Drawdown Limit (if applicable) _____

Initial height of water in casing 164.41 Volume 1.64 gallons
 Total to be evacuated = 3 x Initial Volume 4.93 gallons

Formulas/Conversions
 r = well radius in ft
 h = ht of water col. in ft
 $vol. in cyl. = \pi r^2 h$
 $7.48 gal/ft^3$
 $V_2'' casing = 0.163 gal/ft$
 $V_1'' casing = 0.367 gal/ft$
 $V_4'' casing = 0.653 gal/ft$
 $V_{1.5}'' casing = 0.826 gal/ft$
 $V_6'' casing = 1.47 gal/ft$
Cum. Gal.

Stop Time Start Time Bailed Pumped

Pumped or Bailed Dry? Yes X No After _____ gallons Recovery Rate _____
 Water color _____ Odor _____
 Description of sediments or material in sample: _____
 Additional Comments: _____

CHEMICAL DATA

Reading No.	1	2	3	4	5	6	7
Time							
Gallons							
Temp. (degree F)	<u>73.3</u>	<u>70.4</u>	<u>70.5</u>				
pH	<u>6.32</u>	<u>6.25</u>	<u>6.47</u>				
EC (umhos/cm)	<u>528</u>	<u>508</u>	<u>534</u>				
Special Conditions							

SAMPLES COLLECTED

Sample ID ml	Bottle/cap	Filtered (size, u)	Preservative (type)	Refrig. (R, NR)	Lab (Init)	Analysis Requested

Bottles: P = Polyethylene; Pp = Polypropylene; C or B = Clear/Brown Glass; O = Other (describe)
 Cap Codes: Py = Polyseal; V = VOA/Teflon septa; M = Metal

11:35

APPENDIX E

STANDARD OPERATING PROCEDURES

GROUND WATER SAMPLING

The following describes sampling procedures used by ECM field personnel to collect and handle ground water samples. Before samples are collected, careful consideration is given to the type of analysis to be performed so that precautions are taken to prevent loss of volatile components or contamination of the sample, and to preserve the sample for subsequent analysis. Wells will be sampled no less than 24 hours after well development. Collection methods specific to ground water sampling are presented below.

Prior to sampling, each well is purged of a minimum of three well casing volumes of water using a steam-cleaned PVC bailer, or a pre-cleaned pump. Temperature, pH and electrical conductivity are measured at least three times during purging. Purging is continued until these parameters have stabilized (i.e., changes in temperature, pH or conductivity do not exceed 10%).

Ground water samples are collected from the wells/borings with steam-cleaned or disposable Teflon bailers. The water samples are decanted into the appropriate container for the analysis to be performed. Pre-preserved sample containers may be used or the analytic laboratory may add preservative to the sample upon arrival. Duplicate samples are collected from each well as a back-up sample and/or to provide quality control. The samples are labeled to include the project number, sample ID, date, preservative, and the field person's initials. The samples are placed in polyethylene bags and in an ice chest (maintained at 4°C with blue ice or ice) for transport under chain-of-custody to the laboratory.

The chain-of-custody form includes the project number, analysis requested, sample ID, date analysis and the ECM field person's name. The form is signed and dated (with the transfer time) by each person who yields or receives the samples beginning with the field personnel and ending with the laboratory personnel.